

APPENDIX D: SPCC REQUIREMENTS OVERVIEW

Preface.

The following appendix contains an overview of SPCC requirements, presented both in matrices or timetables, and in a succinct listing of operational requirements:

- Matrix 1: Inspection and Testing Requirements
- Matrix 2: Training Requirements
- Matrix 3: Program Management Requirements
- Operational Requirements Overview of the SPCC Rule (40 CFR 112) of 17 July 2002

The three matrices are not intended to comprehensively detail every requirement or periodic task that may arise when managing an SPCC Program, nor include all idiosyncrasies or exceptions. Rather they are designed to provide a concise overview of many of the typical recurring and routine requirements of 40 CFR 112, augmented by relevant periodic or recurring requirements identified in industry standards. The PE may specify in the SPCC Plan additional periodic requirements, or further refine the associated frequencies in accordance with industry standards and good engineering practice, than those explicitly required in Part 112. The matrices correlate numerous SPCC related tasks, procedures, and other requirements pertaining to inspections and testing requirements, training requirements, and program management to the following attributes or characteristics:

- Who must perform or meet the requirement?
- What is the required or recommended frequency?
- What are the relevant citations from 40 CFR 112 and pertinent industry standards?

The methodology used in creating the matrices, was to first examine verbiage from the specific citation of Part 112, then consult any information available for the given requirement in the preamble to Part 112. If further clarification was still required, pertinent industry standards, such as API 653, "Tank Inspection, Repair, Alteration, and Reconstruction" and STI SP001-00, "Standard for Inspection of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids", were studied. However, industry standard guidelines do not always match up with Part 112 requirements. For instance, API 653 is written only for ASTs (though in practice, elements of this standard are often also utilized for USTs), and STI SP001-00 is written only for shop-fabricated ASTs. Matrix 1 therefore presents various inspection and testing requirements and frequencies prescribed from several sources (who may define inspections differently, and prescribe differing frequencies or procedures). Matrix 1 demonstrates that the guidelines of the various sources occasionally overlap, differ, or even contradict one another. The PE and the facility should work together to develop testing and inspection procedures that both satisfy the intent of the given Part 112 requirement, and rely on sound engineering judgement (e.g., procedures that follow or are compatible with accepted industry standards).

Note: in several Part 112 citations, rather than providing a definitive maximum interval between successive inspections or tests, the frequencies of such measures are simply required to be in accordance with industry standards or at a frequency sufficient to prevent leaks. Since industry standards often take into account the age of the tanks or piping, as well as size, condition, and other characteristics when determining appropriate intervals, frequencies may vary from installation to installation. Consult the citations listed in the matrix for further guidance on what frequency may be appropriate for your facility.

Following the matrices is a more comprehensive listing of the operational requirements of the SPCC rule. This section is an update of the listing of the operational requirements identified in Appendix B of the Spill Prevention Guidance Document (NFESC, 1998), accessible on the internet at [<http://enviro.nfesc.navy.mil/ps/spillprev>].

Matrix 1: Inspection and Testing Requirements

SPCC Requirement	Conducted by Whom	Frequency	Citations
Conduct monthly in-service tank inspection for ASTs.	Personnel knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.	Not specified in Part 112. <i>Per API</i> , at least monthly for ASTs. <i>Per STI</i> , monthly for shop-fabricated ASTs.	§ 112.7(e); Preamble p. 47106; API 653 Section 6.3.1; STI SP001-00 Section 4
Conduct quarterly facility cleaning and walk-around / tank exterior inspection for shop-fabricated ASTs.	Personnel knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.	Not specified in Part 112. <i>Per STI</i> , quarterly for shop-fabricated ASTs.	§ 112.7(e); Preamble p. 47106; STI SP001-00 Section 4
Conduct annual drainage / venting / supports / foundation / cathodic protection inspection for shop-fabricated ASTs.	Personnel knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.	Not specified in Part 112. <i>Per STI</i> , annually for shop-fabricated ASTs.	§ 112.7(e); Preamble p. 47106; STI SP001-00 Section 4
Conduct visual external tank inspection for ASTs.	Authorized inspector.	Not specified in Part 112. <i>Per API</i> , at least every 5 years.	§ 112.7(e); Preamble p. 47106; API 653 Section 6.3.2
Conduct external ultrasonic thickness tank inspection for ASTs.	Personnel knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.	Not required by Part 112. <i>Per API</i> , when this technique is used, it should be performed at least every 5 years.	§ 112.7(e); Preamble p. 47106; API 653 Section 6.3.3
Conduct inspection to evaluate the condition of the AST tank bottom.	Authorized inspector.	Not specified in Part 112. <i>Per API</i> , at least every 10 years when corrosion rates are not known. <i>Per STI</i> , at least every 10 years for shop-fabricated single-walled ASTs in contact with the ground.	§ 112.7(e); Preamble p. 47106; API 653 Section 6.3.4; STI SP001-00 Section 5.3
Evaluate field-constructed ASTs for brittle fracture.	Not specified (authorized inspector recommended).	<i>Per Part 112</i> , when a field-constructed AST undergoes repair, alteration, reconstruction, or change in service.	§ 112.7(i); Preamble p. 47111-12; API 653 Section 5
Conduct leak testing of completely buried tanks.	Not specified (authorized inspector recommended).	<i>Per Part 112</i> , regularly (i.e., in accordance with industry standards or at a frequency sufficient to prevent leaks).	§ 112.8(c)(4); Preamble p. 47118
Conduct leak detector equipment / interstitial inspection for shop-fabricated double-walled ASTs.	Personnel qualified in accordance with API and/or STI.	Not required by Part 112. <i>Per STI</i> , at least every 10 years for shop-fabricated double-walled ASTs.	§ 112.8(c)(6); Preamble p. 47119-20; STI SP001-00 Section 5.4
Conduct integrity testing of tanks.	Personnel qualified in accordance with API and/or STI.	<i>Per Part 112</i> , regularly (i.e., in accordance with industry standards at a frequency sufficient to prevent leaks) and whenever material repairs are made.	§ 112.8(c)(6); Preamble p. 47119-20; API 653 Section 12;

Matrix 1: Inspection and Testing Requirements (cont'd)

SPCC Requirement	Conducted by Whom	Frequency	Citations
Pressure test shop-fabricated ASTs for tightness.	Personnel qualified in accordance with API and/or STI.	Not required by Part 112. <i>Per STI</i> , at least every 10 years for shop-fabricated ASTs.	§ 112.8(c)(6); Preamble p. 47119-20; STI SP001-00 Section 5.1
Conduct ultrasonic testing or perform visual examination of shop-fabricated single-walled ASTs not in contact with the ground.	Personnel qualified in accordance with API and/or STI.	Not required by Part 112. <i>Per STI</i> , at least every 10 years for shop-fabricated single-walled ASTs not in contact with the ground.	§ 112.8(c)(6); Preamble p. 47119-20; STI SP001-00 Section 5.2
Test liquid level sensing devices to ensure proper operation.	Not specified (personnel knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored recommended).	<i>Per Part 112</i> , regularly (i.e., in accordance with industry standards or at a frequency sufficient to prevent leaks).	§ 112.8(c)(8)(v); Preamble p. 47120-21
Inspect all aboveground pipes, valves, and appurtenances.	Not specified (personnel knowledgeable of the storage facility operations, the piping system, and the characteristics of the product stored recommended).	<i>Per Part 112</i> , regularly (i.e., in accordance with industry standards or at a frequency sufficient to prevent leaks).	§ 112.8(d)(4); Preamble p. 47124-25; API 570 Section 6; API 574 Section 7

Note: Records of the inspections and tests, signed by the appropriate supervisor or inspector, must be kept with the SPCC Plan for a period of three years. Industry standards, such as API 570, API 653, and STI SP001-00, may specify record maintenance for more than three years. Records of inspections and tests kept under usual and customary business practices will suffice.

Matrix 2: Training Requirements

SPCC Requirement	Training for Whom	Frequency	Citation
Provide proper instruction in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan.	Oil handling personnel engaged in the operation and maintenance of oil storage containers or related equipment, or emergency response personnel.	Not specified in Part 112. <i>Per preamble</i> , the timing and number of hours are at the discretion of the employer.	§ 112.7(f)(1); Preamble p. 47107-09
Schedule and conduct discharge prevention briefings that highlight and describe known discharges or failures, malfunctioning equipment, and any recently developed precautionary measures.	Oil handling personnel engaged in the operation and maintenance of oil storage containers or related equipment, or emergency response personnel.	<i>Per Part 112</i> , at least annually.	§ 112.7(f)(3); Preamble p. 47107-09

Note: Record keeping requirements pertaining to spill prevention training such as on-the-job instructions, discharge prevention briefings, unannounced drills, etc. are not outlined in 40 CFR 112. However, recommend maintaining basic information (e.g., dates, list of attendees, information presented, etc.) with the SPCC Plan and/or with personnel records to demonstrate training requirements have been and are being met.

Matrix 3: Program Management Requirements

SPCC Requirement	Conducted by Whom	Frequency	Citation
Amend the SPCC Plan when there is a change that materially affects the facility's potential to discharge oil.	A certified PE for any technical amendments.	<i>Per Part 112</i> , within 6 months of the change.	§ 112.5(a); Preamble p. 47090-91
Conduct a complete review and evaluation of the SPCC Plan.	The owner or operator. If no technical changes to the facility or facility operations have occurred, a PE need not certify; if technical changes have occurred, a PE must make these changes and certify the SPCC Plan or Plan amendment.	<i>Per Part 112</i> , at least every 5 years.	§ 112.5(b); Preamble p. 47091-92

Note: Amendments to the SPCC Plan must be kept with the SPCC Plan. Relevant portions of the SPCC Plan should be located at bulk storage facilities (e.g., fuel farms) or be readily available to the facility operator.

Operational Requirements Overview of the SPCC Rule (40 CFR 112) of 17 July 2002

General

- Good engineering practices must be conformed with (i.e., consider relevant industry standards and recommended practices from associations such as such as API, ASME, ASTM, NFPA, and UL) [§ 112.7].
- Appropriate containment and/or diversionary structures or equipment including one or more of the following must be provided to prevent a spill from reaching navigable waters: dikes, berms, retaining walls, curbing, culverting, gutters, weirs, booms, diversion ponds, retention ponds, sorbent materials, other drainage system, or other barriers [§ 112.7(c)].
(Note: if providing such structures is demonstrably not practicable for reasons other than cost or economic impact, certain measures including a strong oil spill contingency plan and a written commitment of manpower, equipment, and material required to expeditiously control and remove spilled oil, can be substituted if properly documented; see § 112.7(d) and § 112.7(a)(2).)
- Entire containment system must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs [§ 112.7(c)].

Inspections and Tests.

- Inspections and tests must be conducted in accordance with written procedures developed by the facility or the certifying engineer, signed by the appropriate supervisor or inspector, and kept with the SPCC Plan for 3 years (those kept under usual and customary business practices will suffice) [§ 112.7(e)]. A listing of observations, inspections, evaluations, and tests required by Part 112, with specified frequencies, is provided below:

“Observe”:

- Effluent treatment facilities (frequently enough to detect possible system upsets that could cause a discharge to navigable waters). See ‘effluent treatment facilities’ under Bulk Storage Containers [§ 112.8(c)(9)] below.

“Inspect”:

- Lowermost drain and all outlets of any tank car or tank truck (before filling and before departure). See ‘lowermost drain and all outlets’ under Loading/Unloading Racks [§ 112.7(h)(3)] below.
- Retained rainwater from diked areas if drainage flows directly to storm drains or navigable waters (inspect prior to draining). See ‘drainage of rainwater from diked areas’ information under Bulk Storage Containers [§ 112.8(c)(3)] below.
- AST supports and foundations (inspect at time of integrity testing). See ‘support and foundation inspections’ under Bulk Storage Containers [§ 112.8(c)(6)] below.
- AST exterior for signs of deterioration, discharges, or accumulation of oil inside diked areas (inspect at time of integrity testing). See ‘container exterior inspections’ under Bulk Storage Containers [§ 112.8(c)(6)] below.
- Buried piping (when exposed for any reason). See ‘exposed buried piping’ under Valves and Piping [§ 112.8(d)(1)] below.
- Aboveground valves and piping (regularly). See ‘aboveground valves, piping, and appurtenances’ under Valves and Piping [§ 112.8(d)(1)] below.

“Evaluate”:

- Brittle fracture on metallic aboveground containers (after repair, alteration, reconstruction, or a change in service that might affect the risk of discharge or failure due to brittle fracture or other catastrophe). See ‘evaluate for brittle fracture’ under Brittle Fracture [§ 112.7(i)] below.

"Test":

- Leak test on completely buried metallic storage tanks installed after 10 January 1974 (regularly). See 'leak testing' under Bulk Storage Containers [§ 112.8(c)(4)] below.
- Integrity test on aboveground bulk storage containers (regularly and whenever material repairs are made). See 'integrity testing' under Bulk Storage Containers [§ 112.8(c)(6)] below.
- Liquid level sensing devices (regularly). See 'liquid level sensing devices' under Bulk Storage Containers [§ 112.8(c)(8)(v)] below.
- Integrity and leak test buried piping (at the time of installation, modification, construction, relocation, or replacement). See 'integrity and leak testing' under Valves and Piping [§ 112.8(d)(4)] below.

Discharge Prevention Training

- Discharge prevention training must be provided to oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and the contents of the SPCC Plan [§ 112.7(f)(1)].
- Designated person who is accountable for discharge prevention and who reports to facility management must be chosen [§ 112.7(f)(2)].
- Discharge prevention briefings must be conducted for oil-handling personnel at least annually to assure adequate understanding of the SPCC Plan and to discuss known discharges, failures, malfunctioning components, and any recently developed precautionary measures [§ 112.7(f)(3)].

Security

- Fencing must be provided for each facility handling, processing, or storing oil [§ 112.7(g)(1)].
- Entrance gates must be locked and/or guarded when the facility is unattended [§ 112.7(g)(1)].
- Master flow and drain valves that permit direct outward flow of the container's contents to the surface must have adequate secure measures so that they remain in the closed position when in non-operating or non-standby status [§ 112.7(g)(2)].
- Pump starter control on each oil pump must be locked in the "off" position and located in at a site accessible only to authorized personnel when the pump is in a non-operating or non-standby status [§ 112.7(g)(3)].
- Loading/unloading connections of oil pipelines (and piping that is emptied of liquid content either by draining or by inert gas pressure) must be securely capped or blank-flanged when not in service or standby service for an extended time (i.e., six months or longer) [§ 112.7(g)(4)].
- Lighting of oil handling and storage areas must be commensurate with the type and location of the facility to in order assist in the discovery of discharges occurring during hours of darkness, and to prevent discharges occurring through acts of vandalism [§ 112.7(g)(5)].

Loading/Unloading Racks

- Quick drainage system must be used at loading/unloading areas that do not flow into a catchment basin or treatment facility designed to handle discharges [§ 112.7(h)(1)].
- Containment of any containment system must be designed to hold at least the maximum capacity of the largest single compartment of a tank car or tank truck loaded or unloaded at the facility [§ 112.7(h)(1)].
- Interlocked warning light or physical barrier system, warning signs, wheel chocks, or vehicle brake interlock system must be provided to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines [§ 112.7(h)(2)].

- Lowermost drain and all outlets of any tank car or tank truck must be closely inspected for discharges prior to filling and departure, and if necessary, ensured that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit [§ 112.7(h)(3)].

Brittle Fracture Evaluation

- Evaluate for brittle fracture any field-constructed aboveground container that undergoes a repair, alteration, reconstruction, or a change in service that might affect the risk of discharge or failure (or has already discharged or failed) due to brittle fracture or other catastrophe, and take appropriate action as necessary [§ 112.7(i)].

Facility Drainage

- Valves must be used to restrain drainage from diked storage areas except where facility systems are designed to control such discharge [§ 112.8(b)(1)].
- Pumps or ejectors may be used to empty diked storage areas if they are manually activated, but the condition of the accumulation must be inspected prior to emptying [§ 112.8(b)(1)].
- Manual, open-and-closed valves must be used when using valves to drain diked areas [§ 112.8(b)(2)].
- Flapper-type drain valves must not be used to drain diked areas [§ 112.8(b)(2)].
- Inspection of retained stormwater must be performed prior to emptying diked areas if the facility drainage drains directly into watercourse and not into an on-site wastewater treatment plant [§ 112.8(b)(2)].
- Ponds, lagoons, or catchment basins designed to retain oil or return it to the facility must be provided for undiked areas with a potential for discharge (such as where piping is located outside containment walls or where tank truck discharges may occur outside the loading area) [§ 112.8(b)(3)].
- Catchment basins for retaining discharged oil from undiked areas must be located in areas subject to periodic flooding [§ 112.8(b)(3)].
- Diversion systems must, in the event of an uncontrolled discharge, retain oil in the facility, at facilities where drainage has not been engineered to flow into ponds, lagoons, or catchment basins [§ 112.8(b)(4)].
- Two lift pumps must be provided and at least one of the pumps must be permanently installed at facilities where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed [§ 112.8(b)(5)].
- Facility drainage systems must be engineered, whatever technique is used, to prevent a discharge to navigable waters in case there is an equipment failure or human error at the facility [§ 112.8(b)(5)].
- See also 'drainage of rainwater from diked areas' information under Bulk Storage Containers [§ 112.8(c)(3)] below.
- See also 'effluent treatment facilities' under Bulk Storage Containers [§ 112.8(c)(9)] below.

Bulk Storage Containers

- Tank material and construction must be compatible with the material stored and conditions of storage such as temperature and pressure [§ 112.8(c)(1)].
- Secondary containment (such as dikes, containment curbs, pits, or drainage trench enclosures leading to facility catchment basins or holding ponds) must be provided for the entire capacity of the largest single container plus sufficient freeboard to contain precipitation [§ 112.8(c)(2)].
- Sufficiently impervious containment must be ensured when diked areas provide secondary containment [§ 112.8(c)(2)].
- Drainage of rainwater from diked areas into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system must not be allowed to occur unless: 1) the bypass valve is normally sealed closed; 2) the retained rainwater is inspected before draining to ensure it will not cause a discharge to navigable waters; 3) the bypass valve is opened

and resealed after draining under responsible supervision; and 4) adequate records are kept of such events [§ 112.8(c)(3)].

- Corrosion protection must be provided by coatings or cathodic protection for any completely buried metallic storage tank installed after 10 January 1974 [§ 112.8(c)(4)].
- Leak testing must be performed on completely buried metallic storage tanks installed after 10 January 1974 regularly [§ 112.8(c)(4)].
- Corrosion protection must be provided by coatings or cathodic protection for the buried section of any partially buried or bunkered metallic storage tank [§ 112.8(c)(5)].
- Integrity testing must be performed on each aboveground container on a regular schedule and whenever material repairs are made, combining visual inspection with a non-destructive shell testing technique such as hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another system or non-destructive shell testing [§ 112.8(c)(6)].
- Support and foundation inspections must be conducted and recorded [§ 112.8(c)(6)].
- Container exterior inspections must be frequently conducted to identify signs of deterioration, discharges, or accumulation of oil inside diked areas [§ 112.8(c)(6)].
- Records of inspections and tests must be kept (those kept under usual and customary business practices will suffice) [§ 112.8(c)(6)].
- Steam return and exhaust lines must be monitored for contamination from leakage through defective internal heating coils [§ 112.8(c)(7)].
- Overfill protection must be provided through at least one of the following devices: 1) high liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance station (in smaller facilities an audible air vent may suffice); 2) high liquid level pump cutoff devices set to stop flow at a predetermined container content level; 3) direct audible or code signal communication between the tank gauger and the pumping station; 4) a fast response system (with a person present to monitor gauges and overall filling) for determining the liquid level of each bulk storage container such as digital computers, telepulse, or direct vision gauges [§ 112.8(c)(8)].
- Liquid level sensing devices must be regularly tested to ensure proper operation [§ 112.8(c)(8)(v)].
- Effluent treatment facilities must be observed frequently enough to detect possible system upsets that could cause a discharge to navigable waters [§ 112.8(c)(9)].
- Visible oil leaks that result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts must be promptly corrected, and any accumulations of oil must be promptly removed [§ 112.8(c)(10)].
- Mobile containers must be positioned to prevent a discharge to navigable waters, with secondary containment sufficient to contain the capacity of the largest single compartment or container plus sufficient freeboard to contain precipitation [§ 112.8(c)(11)].

Valves and Piping

- Wrapping and cathodic protection must be provided for buried piping installed on or after 16 August 2002 (or otherwise satisfy applicable corrosion protection standards) [§ 112.8(d)(1)].
- Exposed buried piping must be carefully inspected for deterioration, and if corrosion damage is found, additional examination and corrective action must be taken, as appropriate [§ 112.8(d)(1)].
- Terminal connections must be capped or blank-flanged at the transfer point and marked as to origin when piping is not in service or is in standby service for an extended time [§ 112.8(d)(2)].
- Pipe supports must be designed to minimize abrasion and corrosion and allow for contraction and expansion [§ 112.8(d)(3)].
- Aboveground valves, piping, and appurtenances must be regularly inspected to assess the general condition of items such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces [§ 112.8(d)(4)].
- Integrity and leak testing must be conducted on buried piping at the time of installation, modification, construction, relocation, or replacement [§ 112.8(d)(4)].
- Vehicular traffic entering the facility must be warned of aboveground piping or other oil transfer operations [§ 112.8(d)(5)].

Animal and Vegetable Oil Storage

- § 112.12 contains the exact same requirements as § 112.8, but regulates animal and vegetable oil storage rather than petroleum oil storage. Containers of animal fats and oils, grease traps, vegetable oils, etc. that are 55 gal or greater in capacity must be considered for inclusion in an SPCC Plan, and must adhere to the same requirements as petroleum storage containers.

